The Nautilus.

Vol. XXVII. JANUARY, 1914. No. 9

LIST OF LAND SHELLS FROM SWAN ISLAND, WITH DESCRIPTIONS OF FIVE NEW SPECIES.

BY W. F. CLAPP.

The following list is based on the land shells found on Swan Island by Mr. George Nelson in April 1913. The material was collected for the Museum of Comparative Zoology, Cambridge, Massachusetts.

Swan Island is situated in the Caribbean Sea about one hundred miles northeast of Spanish Honduras, and three hundred and fifty miles west of Jamaica. About one quarter of the land is cleared and devoted to the raising of cocoanuts; the remaining three-quarters is an almost impenetrable jungle. The soil, rich in lime and phosphate, and the luxurious vegetation, render the island an ideal home for the land mollusca.

From the standpoint of the zoögeographer the fauna of the island is of considerable interest. With so few species represented, it is impossible to be positive when and whence it obtained its molluscan fauna; but further collecting should yield a greater number of species, from which interesting conclusions may be drawn, regarding former land connections in this region.

The *Chondropoma* is most closely related to Cuban or Haitian species; the *Brachypodella* to Cuban, although its resemblance to *B. costulata* of Jamaica is striking. The *Cæcilioides* is also Cuban. The *Lucidella* and *Drymæus* are both closely allied to both Jamaican

and Central American species, while the *Thysanophora* and *Opeas* are so widely distributed that they have little or no significance.

I am greatly indebted to Dr. Pilsbry for assistance in determining the specific values and relationships of the different species, and to Mr. George Nelson for the photographs reproduced on the plate.

The list of species follows:

Thysanophora selenina (Gld.)
Drymæus insulæ-cygni, sp. nov.
Opeas micra (d'Orb.)
Brachypodella insulæ-cygni, sp. nov.
Microceramus concisus (Morel).
Cæcilioides consobrina (d'Orb.)
Succinea latior C. B. Adams.
Colobostylus nelsoni, sp. nov.
Chondropoma caribbæum, sp. nov.
Lucidella pilsbryi, sp. nov.

DRYMAEUS INSULÆ-CYGNI, sp. nov. Pl. VI, fig. 5.

Shell perforate, oblong conical, thin, straw-colored or white, the last one or two whorls irregularly marked with faint longitudinal streaks of pale brown or pink, generally delicate pink on the reflexed columellar lip. Surface glossy, spirally striated with numerous fine incised lines. Apex with typical *Drymaeus* sculpture. Whorls $6\frac{1}{2}$–7 slightly convex.

Aperture ovate, oblique to axis of whorls. Peristome simple, slightly expanded below. Columellar surface within the aperture oblique and more or less sinuous. Columellar lip reflexed in a small flat plate above the umbilicus.

Alt. 30 mm., diam. 13 mm., ap. l. 14 mm.

Alt. 28 mm., diam. 12 mm., ap. l. 13 mm.

Alt. 24 mm., diam. 11 mm., ap. l. 11.5 mm.

Alt. 35 mm., diam. 13 mm., alt. l. 15 mm.

Less solid and opaque than *D. immaculatus*, with sutures more impressed, last whorl shorter. Aperture broader and peristome more convex. The spire resembles in shape that of *D. immaculatus* from Jamaica. The aperture is like that of *D. lilaceus* from Porto Rico. The texture resembles that of *D. sulphureus* from Central America.

The animal when alive is dark bluish green above, fading to slate gray on the sides. The outer edge of the foot is tinged with green, which changes abruptly to cream color near the central part.

Types: No. 22877, M. C. Z.

BRACHYPODELLA INSULÆ-CYGNI, sp. nov. Pl. VI, fig 10.

Shell small, white, thin, translucent, cylindrical, tapering with straight outlines to a narrow truncate apex. Surface sculptured with strong white riblets, oblique to axis of shell, about 12–13 occurring on the penultimate whorl, interspaces about 4 or 5 times as broad as the ribs. Whorls strongly convex, the last not carinate or angulate, its latter half free, descending in a cylindrical neck.

Aperture oblique, rounded, slightly angular at the outer margin, lip white, reflexed. Axis simple, slender.

Length 7 mm., diam. 2. mm., whorls $9\frac{1}{2}$ (truncate).

In living specimens the part of the shell containing the animal is dark grey, with very noticeable, small, irregular black spots on the animal showing between the ribs in the lowest whorls. Apex generally truncate, 4 or 5 corneous whorls being lost. In a specimen retaining the apical whorls the first 2 are vertically costulate, the lower ones becoming more obliquely sculptured.

The shell is similar to *B. minuta*, as described in the Manual of Conchology (vol. 16, p. 58), in size, in having the last whorl not carinate or angular, and in the slender axis, but it differs in having much coarser sculpture. From *B. dominicensis* it differs in color, in having deeper sutures, more convex whorls, and no basal keel; but in the spacing of the riblets and form of the axis, it is similar. In color and in having the whorls most strongly convex just below the suture, in the wide spacing, number, and prominence of the riblets, the shell reminds one of the Jamaican *B. costulata*; but *costulata* has the last whorl strongly carinate.

Types: No. 22889 M. C. Z.

COLOBOSTYLUS NELSONI, sp. nov. Pl. VI, figs. 1, 2.

Shell small, umbilicate, turbinate conical, surface longitudinally striate, with coarse sharp striæ on early whorls, becoming finer and more numerous on last whorl. The umbilical region generally showing a few coarse spiral lines, occasionally extending over the entire whorl. Two general color forms are noticeable, one with the upper whorl purple black, the color gradually fading till on the lower whorl it is purple red; the other form is light horn color throughout, with rows of equidistant square spots, the first two or three spots below the suture being frequently connected, forming short longitudinal lines. The number of spiral rows of these spots

on each whorl varies considerably, but average about three on the antepenultimate, five on the penultimate, and seven on the ultimate. The spots are equidistant whether considered as forming spiral or longitudinal rows. Whorls 3–4, the first growth being lost. Aperture vertical, subcircular, color within corresponding to the outside. Peristome with slightly raised white inner rim, and broad flat white expansion, slightly dilated at the columellar margin, and also above where adnate to the whorl.

Length 11.5 mm., width 7 mm.

Length 10.5 mm., width 6.5 mm.

Operculum white, slightly concave, with involuting lines and deeply grooved edge. The dark central core is nearer the columellar margin than any other portion of the peristome.

Types: No. 22879, M. C. Z.

Chondropoma caribbæum, sp. nov. Pl. VI, figs. 3, 4.

Shell subperforate, oblong, truncate, solid, with spiral flattened ridges and more numerous longitudinal lines. Color varying from horn to purple black, remaining whorls $4\frac{1}{2}$, convex, suture deep, nearly simple. Aperture vertical, longer than wide, rounded below, narrowed above. Peristome simple, adnate to the penultimate whorl, upper outer edge slightly broadened and reflexed.

Operculum cartilaginous, rounded below, broadly pointed above; whorls few, rapidly enlarging, outer half having edge turned abruptly out, inner edge turned in.

Length 10.5 mm., diam. 4.5 mm., ap. 3 mm.

Length 10 mm., diam. 4.5 mm., ap. 3 mm.

In size and general appearance this shell resembles *C. simplex*, from Haiti, but the spiral and longitudinal lines are finer and more numerous, and the last whorl is always adnate.

Types: No. 22885, M. C. Z.

Lucidella pilsbryi, sp. nov. Pl. VI, fig. 6, 7.

Shell depressed, with elevated, fine, spiral lines, strongest on early whorls, nearly obsolete on rounded periphery, base nearly smooth, or with more or less numerous, delicate, spiral furrows. Spire depressed, whorls 4, the last slightly deflexed. A thin granular callus extends from the aperture over the umbilical region, ending in a slight depression. Aperture very oblique, peristome white, a

little expanded above, thickened and reflexed below. Basal lip with short, white, obtusely triangular tooth, projecting in the plane of the last whorl, not projecting into the aperture.

Alt. 1.2 mm., diam. 3.5 mm., s. diam. 2.8 mm.

Four living specimens of this shell were collected. It belongs to the subgenus *Perenna* Guppy. It is smaller, more depressed, darker in color and with less acute liræ than *L. lineata*. In other members of the *lineata* group the basal tooth is squarish and projected into the aperture, but in *pilsbryi* it is broadly pointed and is a continuation of the lower whorl, not projecting into the aperture.

The slightly reflexed upper margin of the aperture, with no trace of tubercular teeth and the small size of the basal tooth, suggest a very slight immaturity. Possibly a larger series would contain older specimens, which would be found to have upper marginal tubercles, and a more strongly developed basal tooth. In any case the shell will be found to be specifically distinct.

Types ; No. 22890 M. C. Z.

NOTES ON MIOCENE CORRELATION.

BY AXEL OLSSON.

The deposits which we have come to recognize as of Miocene age on our Atlantic coastal plain differ in many respects from beds of similar age found in other regions. This uniqueness is due to their faunal characteristics, which were developed under conditions of which we have records nowhere else. Therefore, direct correlation or specific identity of forms is possible in only a few cases, and the Miocene age of these beds is based rather more on stratigraphic than on paleontologic grounds.

The seas of our Eocene and Oligocene periods were rather warm, and hence their faunas find their closest affinities in our present tropical seas. At the close of the Oligocene, conditions began to change. In the Oak Grove sands of Florida the fauna in a slight way portraits the coming Miocene one. However, more important, of which this special case is but a preliminary result, is the inauguration of a great series of orogenetic movements which culminated in a great series of Miocene uplifts. In Europe the whole series of